Claims:

1. A gas delivery system, comprising:

a gas box comprising a first gas channel having a first outlet and a second gas channel having a second gas outlet;

a blocker plate disposed below the gas box, the blocker plate having a plurality of blocker plate holes;

a showerhead disposed below the blocker plate, the showerhead comprising columns having column holes in communication with a top surface and a bottom surface of the showerhead and interconnected grooves having groove holes in communication with the bottom surface of the showerhead;

the first outlet of the gas box adapted to supply a first gas through the blocker plate holes of the blocker plate to the column holes of the showerhead; and

the second gas outlet of the gas box being coupled to the showerhead and adapted to supply a second gas through the interconnect grooves of the showerhead to the groove holes of the showerhead.

2. The gas delivery system of claim 1, wherein the gas box further comprises a temperature fluid control channel.

3. The gas delivery system of claim 1, wherein the gas box further comprises slots formed on side portions of the gas box, the gas delivery system further comprising inserts positioned in the slots, the showerhead being coupled to the gas box with screws disposed through the showerhead and through the gas box and threadingly coupled to the inserts.

4. The gas delivery system of claim 3, wherein the inserts comprise nickel.

5. The gas delivery system of claim 3, wherein the blocker plate is coupled to the

showerhead.

6. The gas delivery system of claim 1, wherein the gas box, blocker plate, and showerhead comprise a material selected from the group consisting of nickel, nickel alloys, nickel-plated metal, nickel-plated aluminum, aluminum, stainless steel, and combinations thereof.

7. The gas delivery system of claim 6, wherein the blocker plate and the showerhead comprise nickel.

8. The gas delivery system of claim 6, wherein the gas box comprises a nickel-plated metal.

9. The gas delivery system of claim 1, wherein the showerhead is formed by coupling two plates together.

10. The gas delivery system of claim 2, wherein the gas box is formed by coupling three plates together.

11. A substrate processing chamber, comprising:

a substrate support having a substrate receiving surface;

a showerhead disposed over the substrate receiving surface, the showerhead comprising a first passageway having a plurality of first passageway holes and a second passageway having a plurality of second passageway holes, the first passageway adapted to deliver a first gas flow through the first passageway holes to the substrate receiving surface and a second passageway adapted to deliver a second gas flow through the second passageway holes to the substrate receiving surface; and

a plasma power source.

12. The substrate processing chamber of claim 11, wherein the plasma power source is in electrical communication with the showerhead.

13. The substrate processing chamber of claim 11, wherein the plasma power source is in electrical communication with the substrate support.

14. The substrate processing chamber of claim 11, wherein the plasma power source is an RF power source.

15. The substrate processing chamber of claim 11, wherein the plasma power source selectively provides a plasma power to perform a plasma process and a non-plasma process.

16. The substrate processing chamber of claim 11, wherein the first passageway of the showerhead comprises column holes through columns and in communication with a top surface and a bottom surface of the showerhead and wherein the second passageway comprises interconnected grooves having groove holes in communication with a bottom surface of the showerhead.

17. The substrate processing chamber of claim 16, further comprising a gas box disposed over the showerhead, the gas box comprising a first gas channel having a first outlet and a second gas channel having a second gas outlet, the first outlet of the gas box adapted to supply a first gas to the column holes of the showerhead,

the second gas outlet of the gas box being adapted to supply a second gas through the interconnect grooves of the showerhead to the groove holes of the showerhead.

18. The substrate processing chamber of claim 17, wherein the gas box further comprises a temperature fluid control channel.

19. The substrate processing chamber of claim 17, further comprising a blocker plate having a plurality of blocker plate holes and disposed between the gas box and the showerhead, the first outlet of the gas box adapted to supply the first gas through the blocker plate holes of the blocker plate to the column holes of the showerhead.

20. The substrate processing chamber of claim 17, further comprising a first gas line in fluid communication with the first gas channel of the gas box and a second gas line in fluid communication with the second gas channel of the gas box.

21. The substrate processing chamber of claim 20, wherein the first gas line and the second gas line are heated.

22. The substrate processing chamber of claim 17, further comprising a titanium containing gas source and a nitrogen containing gas source fluidly coupled to opposite gas channels of the gas box.

23. The substrate processing chamber of claim 22, wherein the titanium containing gas source is fluidly coupled to the first gas channel of the gas box and the nitrogen containing gas source is fluidly coupled to the second gas channel of the gas box.

24. The substrate processing chamber of claim 22, wherein the titanium containing gas source comprises a titanium tetrachloride gas source and wherein the nitrogen containing gas source comprises an ammonia gas source.

25. The substrate processing chamber of claim 22, further comprising a hydrogen containing gas source fluidly coupled to the gas box.

26. The substrate processing chamber of claim 22, wherein the hydrogen containing

gas source and the nitrogen containing gas source are fluidly coupled to the same gas channel.

27. The substrate processing chamber of claim 22, wherein the hydrogen containing gas source and the titanium containing gas source are fluidly coupled to the same gas channel.

28. A method of processing a substrate in a single chamber, comprising:

forming a titanium layer over a substrate structure by plasma enhanced chemical vapor deposition; and

capping the titanium layer by a nitrogen plasma treatment of the titanium layer.

29. The method of claim 28, wherein forming a titanium layer comprises providing a titanium containing gas through a first passageway of a showerhead and capping the titanium layer comprises providing a nitrogen containing gas through a second passageway of the showerhead.

30. The method of claim 29, wherein the first passageway comprises column holes and wherein the second passageway comprises groove holes.

31. The method of claim 29, wherein the titanium containing gas comprises titanium tetrachloride.

32. The method of claim 29, wherein the nitrogen containing gas comprises ammonia.

33. The method of claim 29, wherein forming a titanium layer further comprises providing a hydrogen containing gas.

34. The method of claim 33, wherein the hydrogen containing gas is provided through the second passageway of the showerhead.

35. A method of forming a composite titanium/titanium nitride layer over a substrate structure in a single chamber, comprising performing a plurality of process cycles, the process cycle comprising:

depositing a titanium layer by plasma enhanced chemical vapor deposition; and

treating the titanium layer with a nitrogen plasma treatment.

36. The method of claim 35, wherein depositing a titanium layer comprises providing a titanium containing gas through a first passageway of a showerhead and treating the titanium layer comprises providing a nitrogen containing gas through a second passageway of the showerhead.

37. The method of claim 36, wherein the first passageway comprises column holes and wherein the second passageway comprises groove holes.

38. The method of claim 36, wherein the titanium containing gas comprises titanium tetrachloride.

39. The method of claim 36, wherein the nitrogen containing gas comprises ammonia.

40. The method of claim 36, wherein depositing a titanium layer further comprises providing a hydrogen containing gas.

41. The method of claim 40, wherein the hydrogen containing gas is provided

through the second passageway of the showerhead.

42. A method of processing a substrate in a single chamber, comprising:

forming a titanium nitride layer by chemical vapor deposition, and

treating the titanium nitride layer with a nitrogen plasma.

43. The method of claim 42, wherein forming a titanium nitride layer comprises providing a titanium containing gas through a first passageway of a showerhead and providing a nitrogen containing gas through a second passageway of the showerhead.

44. The method of claim 43, wherein treating the titanium layer comprises providing a nitrogen containing gas through the second passageway of the showerhead.

45. The method of claim 43, wherein the first passageway comprises column holes and wherein the second passageway comprises groove holes.

46. The method of claim 43, wherein the titanium containing gas comprises titanium tetrachloride.

47. The method of claim 43, wherein the nitrogen containing gas comprises ammonia.

48. A method of processing a substrate in a single chamber, comprising:

forming a titanium layer over a substrate structure by plasma enhanced chemical vapor deposition, and

forming a titanium nitride layer over the titanium layer by chemical vapor deposition.

49. The method of claim 48, wherein forming a titanium layer comprises providing a titanium containing gas through a first passageway of a showerhead.

50. The method of claim 49, wherein forming a titanium nitride layer comprises providing a titanium containing gas through the first passageway of the showerhead and providing a nitrogen containing gas through a second passageway of the showerhead.

51. The method of claim 50, wherein the first passageway comprises column holes and wherein the second passageway comprises groove holes.

52. The method of claim 50, wherein the titanium containing gas comprises titanium tetrachloride.

53. The method of claim 50, wherein the nitrogen containing gas comprises ammonia.

54. The method of claim 50, wherein depositing a titanium layer further comprises providing a hydrogen containing gas.

55. The method of claim 54, wherein the hydrogen containing gas is provided through the second passageway of the showerhead.

56. The method of claim 48, further comprising capping the titanium layer by a nitrogen plasma treatment of the titanium layer.

57. The method of claim 48, wherein forming a titanium layer by plasma enhanced chemical vapor deposition comprises forming a composite titanium/titanium nitride layer.

58. The method of claim 57, wherein forming a composite titanium/titanium nitride layer comprises performing a plurality of process cycles, the process cycle comprising:

depositing a titanium layer by plasma enhanced chemical vapor deposition; and

treating the titanium layer with a nitrogen plasma treatment.

59. The method of claim 48, further comprising treating the titanium nitride layer with a nitrogen plasma.